

REMARKS**STATUS SUMMARY**

Claims 1-22 are pending in the present Application. Claims 14, 15 and 18 are allowed. Claims 1-13, 16, 17 and 19-22 are rejected. In this Amendment, claims 1, 2, 15, 18 and 19 have been amended, and claims 6, 7, 13, 14, 16-18, 20 and 21 have been canceled without prejudice.

Claim Rejections – 35 U.S.C. § 112, first paragraph**Claims 1-12**

Claims 1-12 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. The Examiner contends that the action of determining the temperature profile in claim 1 as originally filed does not specifically optimize an LC/MS system.

In response, Applicant has amended claim 1 to clarify the invention being recited. Claim 1 as amended recites “determining the temperature profile comprises determining a first temperature of the gas for adding heat to the first solvent and a second temperature of the gas for adding heat to the second solvent,” and “flowing the gas into the API interface for interacting with the matrix.” The actions recited in claim 1 clearly occur in an LC/MS system. Mass spectrometry requires ionization, and the recited API interface is a type of ionization device that may be considered as being the front end of a mass spectrometry apparatus. *See* Applicant’s specification (WO 2004/042384), page 1, line 31 to page 2, line 6 (“The advent of mass spectrometers that utilize an . . . (API) interface . . . has enabled the eluent from the LC column to be fluidly connected to the mass spectrometer”).

Claim 2 has been amended, and claims 6 and 7 have been canceled, to conform to the amendment made to claim 1.

In view of the foregoing, Applicant respectfully submits that claim 1 as clarified by amendment, and claims 2-5 and 8-12 by way of dependency, comply with 35 U.S.C. § 112, first paragraph. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Claims 19-22

Claims 19-22 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Similar to claims 1-12 discussed above, the Examiner contends that claim 19 is not specifically directed to optimization of an LC/MS system.

Applicant respectfully traverses this rejection for the same reasons as set forth above regarding claims 1-12. Claim 19 recites “an API interface” and “a gas conduit for flowing a gas into the API interface.” The recitation of the API interface renders claim 19 specific to mass spectrometry. Moreover, to expedite prosecution, claim 19 has been amended in a manner similar to claim 1.

Claims 20 and 21 having been canceled, and claim 22 has been amended, to conform to the amendment made to claim 19.

In view of the foregoing, Applicant respectfully submits that claim 19, and claim 22 at least by way of dependency, comply with 35 U.S.C. § 112, first paragraph. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Claim Rejections – 35 U.S.C. § 112, second paragraphClaims 1-12

Claims 1-12 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner contends that “nothing in the body of the claim is related to performing MS analysis.”

Applicant respectfully traverses this rejection for the same reasons as set forth above regarding the rejection under 35 U.S.C. § 112, first paragraph. Recitation of the API interface renders claims 1-12 specific to mass spectrometry, which entails ionization followed by mass sorting of the resulting ions. As described throughout Applicant’s specification, the optimization that is effected by the invention is associated with the interaction between a gas and the matrix (or eluent) flowing into the API interface (i.e., the ionizing device), which results in improved performance of the mass spectrometer.

As noted above, claims 6 and 7 have been canceled to conform to the amendment made to claim 1.

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In view of the foregoing, Applicant respectfully submits that claim 1, and claims 2-5 and 8-12 at least by way of dependency, comply with 35 U.S.C. § 112, second paragraph. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Claim 19

Claim 19 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner contends that it is unclear whether the heating device is automated or manually operated.

Applicant has amended claim 19 to recite “an electronic processor-based device configured for controlling the heating control device.” In view of the foregoing, Applicant respectfully submits that claim 19 as clarified by amendment complies with 35 U.S.C. § 112, second paragraph. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Claim Rejections – 35 U.S.C. § 103

Claims 13, 16, 17

Claims 13, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins et al. (US 2002/0023878 A1) (Collins). Applicant respectfully traverses. However, to expedite prosecution, Applicant has canceled claims 13, 16, 17. Accordingly, the rejection of claims 13, 16 and 17 is moot.

Claims 19 and 20

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lubman et al. (US 2002/0039747 A1) (Lubman). The Examiner cites to paragraph 113 in Lubman, which refers to heating the LC column in a “column heater” so as to maintain a column temperature of 60°C. Applicant respectfully submits that the heating of the LC column is an event separate from the flowing of a gas into the API interface. Moreover, this rejection is moot in view of the amendment made to claim 19. Claim 20 has been canceled in view of this amendment. In view of the foregoing, Applicant respectfully submits that claim 19 is patentable under 35 U.S.C. 103(a) over Lubman, and therefore respectfully requests that this rejection be withdrawn.

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CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited. However, if the Examiner believes that the Amendments and Remarks do not place the application in condition for allowance, Applicant respectfully requests that an Advisory Action be mailed at the earliest possible date.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters.

Authorization is hereby given to charge Deposit Account no. 50-0895 for any fees due in this transaction.

Respectfully submitted,

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